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Title Page

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Cervical Spine Training in First On-Call Trainees in Oral & Maxillofacial Surgery

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Abstract

Aim

This study aims to determine the training and confidence in the management of cervical spine (c-spine) injuries amongst first on-call trainees in oral & maxillofacial surgery(OMFS) units working in the United Kingdom.

The dental training curricula pertaining to these trainees shall be reviewed to determine the relevant knowledge and skills currently deemed appropriate.

Materials & Methods

A questionnaire was sent to 100 UK OMFS first on call trainees. This determined their primary qualification(s), previous experience in OMFS, prior training and confidence in the management of C-spine injuries. Dental training curricula were analysed for sections relating to cervical spine injuries.

Results

Sixty six questionnaires were returned. 70% were from singly qualified dental graduates. The mean experience in OMFS was 16.3 months. 59% of respondents had no cervical spine training. Of those who had received training, 66.7% received this by an advanced trauma life support (ATLS) course.

63% of oral & maxillofacial trainees were not confident in assessing and managing potential cervical spine injuries. 95% stated that training in the assessment and management of cervical spine injuries would be useful.

Dental training curricula do not mention the initial assessment and management of patients with cervical spine injury.

Conclusion

There is a knowledge and confidence deficit in OMFS first on call trainees in management of cervical spine injury. Dental foundation curricula do not specifically mention the management of patients with cervical spine injury. Most (95%) first on call trainees in Oral & Maxillofacial Surgery felt that cervical spine teaching would be useful to them.

Clinical Relevance

Scientific Rationale for Study

There's an evolving educational gap between dental training curricula and the role of the dental graduate.

Principle Findings

74% of dental graduates were *not confident* to undertake the initial management of a patient with a potential cervical spine injury.

98% of dentally graduates felt cervical spine training was important and should be part of their training.

Early dental training curricula do not specifically mention cervical spine injury.

Practical Implications

Dental training curricula should include reference to the management of cervical spine injury.

Basic trauma life support skills should be introduced to the undergraduate curricula to better prepare graduates for their role with in acute hospitals.

Main Text of Original Article

Introduction

Dental graduates working in oral and maxillofacial surgery (OMFS) departments will have limited experience in the management of multiply injured patient. The initial management of the multiply injured patient requires maintenance of the airway and protection of the cervical spine[6,7]. Failure to do this can lead to catastrophic consequences including paralysis and death. The incidence of cervical spine injury following oral & maxillofacial trauma is up to 19.2%[8].

UK dental undergraduate education is based on the The First Five Years (Third Edition (Interim) General Dental Council 2008)[1] which has been replaced with Preparing for Practice (General Dental Council 2014)[2] . Subsequently almost all graduates undertake a dental foundation programme. The curricula has been developed by the The Committee of Postgraduate Dental Deans and Directors (COPDEND). There are two documents: "A curriculum for UK dental foundation programme training" (COPDEND 2006)[3] ; and "Interim Dental Foundation Training Curriculum & Assessment Framework Guidance 2013–14", (COPDEND 2013)[4] . There is also a joint position statement from COPDEND and the British Association of Oral & Maxillofacial Surgeons (BAOMS/COPDEND 2011)[5] intended as guidance on the provision of education, training and healthcare by a dental Foundation Year 2 in an OMFS department. A qualitative comparison has already been completed on the overlap between dental foundation training curricula and that of the medical foundation training curricula and the core surgery training curricula(ref).

It is clear in all curricula that the dental graduate working in an acute hospital must always practice with in their ability, and to call upon on-site senior help should there be an issue they cannot deal with. All curricula cover dealing with life threatening medical emergencies – failing or delaying to assess, treat and refer to hospital may result in death or disability. It is also clear that protocol based treatment for these emergencies are safe for the independent registrant to undertake in general dental practice.

Many dentally qualified first on call trainees working in OMFS will be called to the emergency department to initially assess and manage patients with oral and maxillofacial trauma. There are a number of injuries to the mouth and face that can affect the airway and will be encountered early in the assessment of the multiply injured patient – it is at this stage that the first on call trainee in OMFS may be called to attend, and at this stage where they need to be aware of the inital assessment and management of cervical spine injury. Patients with isolated oral and maxillofacial injury will commonly bypass emergency department assessment as they will have been transferred from other

hospital without onsite OMFS, from minor injury units or will have been perceived to have isolated oral and facial trauma.

We assessed the current training level and self reported confidence of OMFS first on call trainees in the initial assessment and management of potential cervical spine injuries. We also analysed the dental undergraduate and early post-graduate training for relevant required competencies.

Materials & Methods

A modified Shanks[9] electronic questionnaire was sent to 100 first on call trainees (DFY2s/SHOs/Trust Grades etc) working in OMFS in acute hospitals in the UK.

The questionnaire contained domains relating to primary qualifications, number of months experience in OMFS, previous teaching and self reported confidence in the initial assessment and management of cervical spine injuries. They were asked to rate the importance of cervical spine management.

The First Five Years (GDC 2008), Preparing for Practice (GDC 2014) Dental Foundation Programme curricula (COPDEND 2006) (COPDEND August 2013) and the Joint Statement from COPDEND and BAOMS (2011) were examined for domains relating to trauma management and cervical spine injuries.

Results

Survey

A total of 66 (66%) trainees returned the questionnaire. A total of 46 trainees (70%) were singly dental qualified. 12 (18%) were dual qualified and 8(12%) were singly medically qualified.

The mean duration of experience in OMFS was 16.3 months (range, 0-60 months). This was 14.9, 20.8 and 15.4 months in those who were medically qualified, dual qualified and dentally qualified, respectively.

Of those medically or dual qualified (n=20), seven (35%) had no cervical spine training. Of the remainder, 12 (60%) received training at an Advanced Trauma Life Support (ATLS) course and 1 (5%) at medical school.

Of those dentally qualified (n=46), 32 (70%) had no cervical spine management training. Of the remainder, 6 received this by departmental teaching, 6 by an ATLS course and 2 by a 'Dentist on the Ward' course (Figure 1).

In the dentally qualified cohort, 34 (74%) were not confident to examine and manage a potential cervical spine injury. A further 13% were unsure if they were confident (total unsure or not confident, 87%). Of those who were medically or dual qualified, 8 (40%) were not confident to examine and manage a potential cervical spine injury.

Of those who were dentally qualified 98% felt that cervical spine training was important and should be included in their training. Of those who were medically or dual qualified 90% felt that cervical spine training was important.

Twenty percent of those questioned left a free comment. An analysis of the free text comments reveals that they feel this to be "a neglected area", "would be a very useful education topic" and "we definitely require training in this field". There were references to patients being assessed, cleared or treated by emergency departments prior to referral to OMFS, and therefore OMFS DFY2 do not require training. There were 2 general comments about the poor training that dental graduates are given prior to starting in OMFS posts.

Curricula Analysis

The First Five Years (3rd Edition – Interim) 2008 has no specific mention of cervical spine injury or management is mentioned in this curriculum. The curriculum does mention the following however:

"*be competent at clinical examination and treatment planning*"

"*have knowledge of diagnosing medical emergencies and delivering suitable emergency drugs using, where appropriate, intravenous techniques*"

"*be familiar with the principles of assessment and management of maxillofacial trauma*"

However where required the curriculum is specific about the following:

"*be competent at carrying out resuscitation techniques and immediate management of cardiac arrest, anaphylactic reaction, upper respiratory obstruction, collapse, vasovagal attack, haemorrhage, inhalation or ingestion of foreign bodies and diabetic coma*"

The Preparing for Practice document has no mention of management of cervical spine injury or maxillofacial trauma. It does however mention:

"*Undertake an appropriate systematic intra- and extra-oral clinical examination*" and eludes to the importance of using radiographic investigations and making a full assessment of the patient.

The UK Dental Foundation Programme Curriculum (2006) states: *"..additional competencies may be required. However the purpose of this document is to provide recommendations for a generic curriculum for the UK dental foundation programme, and any additional requirements within specific rotations should be identified locally*." They should also be able to *"Perform a comprehensive extra-oral and intra-oral examination that is suitable for the clothed patient and record the findings accurately through communication, either with or without a supporting healthcare professional."*

The Interim UK Dental Foundation Curriculum (2013) states, within the clinical domains pertaining to medical and dental emergencies, that the "*..trainee can demonstrate to an appropriate standard the ability to: 1. Recognise the need and provide care for dentofacial trauma patients requiring immediate attention quickly and effectively. 2. Recognise, manage, (and where required, provide) basic and immediate life support for medical emergencies, in line with guidelines from the UK Resuscitation Council.* and *5. Identify and refer with an appropriate degree of urgency, medical and dental emergencies which are beyond his or her scope of management."*

The Joint Statement from COPDEND and BAOMS (2011) suggests that "*Training should include exposure to emergency care, including appropriately supervised on-call"* and, "*Training should include exposure to the management of patients on surgical wards and in the emergency department.*

Appropriate supervision must always be available and an escalation policy should be agreed"

A tabulated form of this section is in Table 1.

Discussion

There is a 2.4% risk of injury to the cervical spine after blunt trauma and risk is increased following craniofacial trauma [10-13] .With multiple facial fractures this rises further[13]. If the cervical bony architecture and ligamentous attachments are disrupted, the spinal cord is unprotected. In this situation, it is important to appropriately assess and immobilse the cervical spine to prevent further injury to the spinal cord. Damage to the spinal may result in permanent neurological deficit or death.

It would appear that UK dental curricula do not contain sufficient reference to the assessment and management of cervical spine injury to adequately train dental graduates to manage these patients.

Within all of these documents the importance of a full history and examination in an acute hospital setting is underlined. There is a passing reference to the trauma patient, but no specific mention of the patient with a cervical spine injury. There is reference to the acutely unwell medical patient (anaphylaxis, cardiac arrest, diabetic coma). It is interesting to note that the dental foundation curriculum references a document pertaining to spinal surgery [14].

The dentist is a key member of the wider community health care team and is a highly trained professional who uses a wide range of diagnostic and therapeutic strategies with in their remit. Dental graduates, with appropriate further training, must not underestimate their potential role in the community and acute hospital setting. Indeed their curricula currently contain domains related to medical emergencies. The addition of cervical spine management appears sensible and important to their education and training with in the acute hospital environment.

Conclusion

Those working as first on call trainees in OMFS who are dentally qualified feel they are under prepared for dealing with patients with cervical spine injuries. In the dentally qualified cohort, almost three quarters were *not confident* to examine and manage a potential cervical spine injury and 98% felt that the initial assessment and management of cervical spine training was important.

Curricula related to training of these practitioners are notably lacking in domains specifically related to cervical spine management[15,16]

Basic trauma life support principles should be integrated in to undergraduate dental education, to allow these principles to be built on during dental foundation, prior to starting work in oral & maxillofacial surgery.

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